

SHOW FILES

File 652:US Patents Fulltext 1971-1975

(c) format only 2002 Dialog

File 654:US Pat.Full. 1976-2006/Nov 02

(c) Format only 2006 Dialog

?

Set	Items	Description
S1	180	PD<=010614 AND (ABNORMAL? (S) OPERATING (S) ND (DIAGNOS? (S) CORRECT?)
S2	1	S1 AND (ABNORMAL? (4W) OPERAT? (4W) CONDITI NOS? (8W) CORRECT?)
S3	19	S1 AND (ABNORMAL? (4W) OPERAT? (4W) CONDITI RY OR LOG? OR RECORD?)
S4	1	S2 AND (ABNORMAL? (3W) OPERAT? (2W) CONDITI RY OR LOG? OR RECORD?)

T S4/3,KWIC/1

4/3,KWIC/1 (Item 1 from file: 654)

DIALOG(R)File 654:US Pat.Full.

(c) Format only 2006 Dialog. All rts. reserv.

2373715 **IMAGE Available

Derwent Accession: 1981-J2055D

Utility

REASSIGNED

**E/ System and method for monitoring and controlling operatio
gas turbine apparatus and gas turbine electric power plants
a digital computer control system**

Inventor: Yannone, Robert A., Aldan, PA

Reed, Terry J., Latrobe, PA

Assignee: Westinghouse Electric Corp.(02), Pittsburgh, PA

WESTINGHOUSE ELECTRIC CORP (Code: 91840)

Examiner: Truhe, J. V. (Art Unit: 217)

Assistant Examiner: Redman, John W.

Combined Principal Attorneys: Possessky, E. F.

	Publication Number	Kind	Date	Application Number
	-----	--	-----	-----
Main Patent	US 4283634	A	19810811	US 72317839
Continuation	Abandoned			US 71155905

Fulltext Word Count: 24167

... 19810811

Summary of the Invention:

...No. 082,470 filed by J. Reuther and T. Giras, entitle
Method for Operating Industrial Gas Turbine Apparatus an
Electric Power Plants Preferably with a Digital Computer..

...and T. Reed, entitled Improved Control Computer Programmi
Improved System and Method for Operating Industrial Gas
Apparatus, and assigned to the present assignee...

...to gas or combustion turbine apparatus, gas turbine elect
plants and control systems and operating methods therefo

...In connection with prior art gas turbine electric power p and control systems and operating methods therefor, ref to copending related application Ser. No. 082,470 which in

...the other enumerated related patent applications comprise of an improved gas turbine plant operating and control s present disclosure represents a further advancement over t and...

...combustor elements, hot parts, rotor blades, etc., in the over-temperature or overload conditions . Thermocouples h been placed in the exhaust gas stream to determine tempera

...temperature control, the accuracy and reliability of such determines the degree to which optimum operating condit obtained...

...have not been provided heretofore. As hereinabove suggest have existed in overall gas turbine operating flexibilit speed, accuracy and reliability. Such limitations similarl in gas temperature monitoring...

...achieve such temperature limiting and control response as heretofore achieved, complicated arrangements of logic c redundant thermocouple input channels have been employed. and control system implementations...

...as the combustor baskets and rotor parts. Systems capable all or substantially all conditions which may predictabl such catastrophic failures have not as yet been devised. N

...prior art temperature monitoring and control systems a fa indicating which turbine control or operating condition may be the underlying cause of determined thermocouple rea reliability and...

...Gas turbine operating and control problems which may be with thermocouple process temperature readings include imp functioning...

...Turbine system faults or failures which cause significant related operating and control problems include a plugged nozzle, poor interconnection of combustor baskets, and imp atomization and combustor basket deterioration. As previou

resultant over-temperature conditions in the gas turbine cause turbine damage such as damage to or failure...

...and limit control, process temperature sensors are arranged to detect both normal and abnormal gas turbine operation. In a preferred arrangement individual sensors are operatively associated in one-to-one relationship with...

Description of the Drawings:

...FIG. 22 shows a logic diagram representative of the sequencing logic performed by the sequencing program...

...FIG. 43 illustrates a flowchart for the thermocouple process demonstrating in logic flow form the temperature monitor input deviation in accordance with the principles of...

Description of the Invention:

...120, an automatic send/receive printer 122 and a control panel 124 for sensing abnormal electric power system condition number of basic master and slave units 118 through 124 proportionally according...

...on the auxiliary bedplate and it includes motor starters and devices to provide for operating the various auxiliary equipment associated with the plant 100...

...to measure air inlet discharge temperature and bearing oil temperatures. In this manner alarm conditions are provided to the control system. Additional control functions are provided to adjust...

...of the turbine discs to provide a relatively constant low temperature over the unit operating load range...

...As a further benefit to the plant operator, turbine and generator operating functions are included on a single operator's panel in conformity with the integrated turbine...

...generated by operator switches, temperature measurements, pressure switches and other sensor devices. Once it is logically determined that the overall plant status is satisfactory, the plant start sequence is programmed...

...sequence generally embraces starting the plant lubrication system...

starting the turning gear, starting and operating the st
to accelerate the gas turbine 104 from low speed, stopping

...an arrangement of blocks in the preferred configuration o
control loops for use in operating the gas turbine power
other industrial gas turbine apparatus. No delineation is.

...shown a schematic diagram representative of the events in
turbine startup embraced by operating Modes 0, 1 and 2 i
embodiment. FIG. 11 also illustrates the sequencing...name
(P50). Generally, the P50 computer system employs a 16,000
memory with a word length of 14 bits and a 4.5 microsecon
The...

...and instructions so as readily to provide for handling th
associated with controlling and operating multiple gas t
units as generally considered previously and as more fully
subsequently...

...The P50 core memory is expandable, and by addition of f
modular units the P50 is capable of substantial...

...which scans contact or other similar signals representing
various plant and equipment conditions. The status conta
typically be contacts of mercury wetted relays (not shown)
operated by energization circuits (not shown) capable of s
predetermined conditions associated with the various pla
Status contact data is used for example in interlock logi
in control and sequence programs, protection and alarm sys
functioning, and programmed monitoring and logging.

...

...or printer 310 is also included and it is used for purpos
for example logging printouts as indicated by the refere
312...

...in connection with FIG. 1 is also illustrated in FIG. 9 s
provides for operating an inverter 318 which provides th
necessary for operating the computer system, control sys
elements in the power plant 100. The inverter...

...as a single computer system block 305 in FIGS. 12A and 12
a recorder panel 307, a supervisory control 309 and an a

panel 311 are shown in FIGS...

...the protective relay cabinet generate signals representat bus, line, generator and exciter electrical conditions . panel 120 also generates analog inputs including five cali connections as...

...Various computer output signals are generated for operat the operator's console 120 (or for operating recorders optional as shown in FIG. 12A) and they are applied as com

...plus rate amplifier 364. The amplified speed error signal inverted to obtain the correct polarity by an inverter b fuel command limit action is applied, the...

...circuit 392 and cause the generation of the low limit set of two logic conditions is satisfied...

...protection if the turbine speed exceeds the predetermined 108% as a first logic condition , the auxiliary speed s applied to the input of a comparator circuit 396 which...

...generate a switching signal at the input 395 of the analo through a logic inverter 402...

...The second logic condition which causes auxiliary spe protection is preferably included so that the turbine oper

...the acceleration is also excessive, an output from the co coupled through the logic circuits 397, 400 and 402 to t input of the logic switch 394 which causes low limit act demand signal through the clamp...

...flameout during normal speed operations, or to cause turb cutback without flameout when overspeed conditions are d auxiliary speed limiter circuit 326. At an input 410 to th

...350 in the main speed channel. An inlet vane electropneum 450 is provided for operating the previously mentioned p of the guide vane assembly. As illustrated in FIG. 16...

...a generator potential transformer as indicated by the ref 454 to detect the relative conditions of the two sensed operator or automatic synchronization of the generator 102

...block 460 which generates an output only when both square are in the ON condition . In turn, an analog switch 460 a to a phase difference amplifier 464...Alarm condition in provided by alarm lights and a horn blow. Associated panel are HORN...

...control by the associated pushbutton. A DEMAND REVIEW pus provides for printout of current alarm conditions .

...

...indications which may be further processed to occasion al printout or gas turbine shutdown. Abnormal operating detected by thermocouple processing program 616 are in two those related to a failure...

...scan program 614 acts to read the system thermocouples wh stored in computer memory to be acted upon by the thermo processing program 616. Thermocouple processing program 61 control average which is confirmed reasonable every second checks stored within the memory . The unacceptable values confirmed open readings, readings reflecting shorted or gr thermocouple connections, those...

...A log program 618 operates in conjunction with a conver 620 to generate a periodic printout...

...or they may be initiated by interrupt, or they may be ini error condition detected by a program execution on a sub secondary level. The secondary lower...

...computer, executing programs, loading constants or instru dumping areas of main and extended core memory . Core loc dumped in binary on tape or in octal on a keyboard...

...switches, pressure switches, and other plant devices. The information is stored in a master logic table as indicat 624. Next, in providing ultimately for better plant startu

...the stored data is employed in the evaluation of a plural of sequence logic as indicated by block 626...

...The results of the evaluation of the sequence logic may communication with other programs in the program system in the results...

...those programs. As indicated by block 628, the results of of the sequence logic may also require certain contact c In block 630, a resident table of turbine data acquired fr by the acquisition block 622 is saved in the original cor location while nonresident turbine data comprising operato is allowed to be destroyed...

...the sequencing program 600 is ended. If one or more gas t for sequencing logic determinations in the current run o sequencing program 600, the program 600 is re...

...turbine and the process is repeated until the last turbin serviced with sequence logic processing in the current s program execution...

...and the read only turbine A table. The acquired data is s master logic table as indicated by block 636 which corre 624 in FIG. 20. The master logic table is employed in th logic program block 638 which corresponds to block 626 in

...After the sequence logic has been evaluated by the prog postprocessor 640 is entered and it corresponds...

...read/write and read only tables, contact closure input an tables, the master logic table and turbine alarm data ta found in Section D7b., pages 117 to...

...Generally, the sequence control subsystem embraces certai operations which provide for an orderly advance of the pro startup, run and shutdown operations while providing many advantages. In providing sequence operations, the sequence subsystem includes the sequencing program which interacts.

...over a fixed predetermined time interval. The software ma serves to establish and disestablish logic conditions initiating the making and breaking of external control cir equipment startup and shutdown operations under predetermi equipment conditions .

...

...After ignition programmed sequencing logic causes the c 300 to be placed in Mode 1 operation and the gas...

...d. Sequence Logic Charts...

...In FIG. 22, there are shown logic diagrams of represent sequencing functions performed by the sequencing program 6 626 (FIG. 20) each time it is executed. Predetermined log blocks are employed in defining the conditions for the p the sequencing program functions. Each block contains a sy identifying its function and a number and/or alpha-numeric providing a program block identification. The logic func identifying symbol is generally located above the program identification character. The following is a list of the and the logic functions to which they correspond...

...There is principally shown the logic associated with st operations and the master contactor or control function to reference has already been made. Generally, logic diagra to the master contactor or control function generated by f a function of pushbutton operations and other conditions logic diagram 644 relates to the generation of a shutdown response to pushbutton, shutdown alarm and other conditio shutdown OR block OR6 resets the master contact function f when a shutdown is initiated. In the logic diagram 644, are initiated by line L86 through block OR4. On shutdown,

...Other sequencing program logic functions set forth in form in FIG. 22 include a plurality of generator alarms de GEN...

...e. Macro Instructions For Sequencing Logic And Logic Related Macros...

...In this case, a set of Macros are constructed to provide programming of logic blocks in a logic system. The Lo generally facilitate process control programming and are p advantageous in gas turbine power plant applications becau volume of sequencing logic involved therein and, accordi of the large amount of programming effort that can be avoi the Logic Macros...

...In use, the various Logic Macros represent logic func various input logic conditions can be specified. Each the P50 assembly program to generate a set of instructions on the specified Macro input conditions to generate a ma

instruction block which will execute the logic functions Macro for the specified input conditions . Similar types achieved with the use of Control Macros also employed in the embodiment and set forth in the subsequent section herein. logic functions are more conveniently implemented as sub specified inputs and outputs, to be shared...

...Further description of the plant sequence functions, associated logic charts, the Macro instructions for sequencing logic subroutines and related Macros may be found in the copending application Ser. No. 082...

...compressor inlet temperature and combustor shell pressure given special reliability checks by sequencing logic in

...FIGS. 34 and 35. Referring to FIG. 34, analog inputs are stored in memory . A fuel demand representation is obtained kilowatt output is determined. There follows successive... more specifically to FIG. 43, the thermocouple processing depicted in logic flow form without specific reference to steps. A suitable implementation of functions depicted in.

...for the program 616 and caused to be stored in an input portion of memory available to the program...

...It should be noted that an additional thermocouple condition represented by a large negative value. If this input condition to exist in the event of a reversed thermocouple connection is desirable that a unique negative value represents open that these two conditions may be differentiated. In either output of that thermocouple is discarded in calculating...

...Decision block 794 determines whether there exists a possible improbable condition , namely, a situation wherein there are values. In the event that this situation...

...the employment of stored nonlinear curve data which is related to the nonlinear turbine surge operating limit over startup operating ranges as depicted in FIG. 27. In this instance nonlinear curves 326...

...082,476, now U.S. Pat. No. 3,898,439, in connection with Logic Macro instructions described in Section D.7e. there

points for compressor inlet temperatures between...

...After determination of the surge control function, block whether the system is in operating Mode 1. If it is, block entered to provide for gas turbine acceleration...

...The temperature reference curves 334 and 336 are nonlinear respectively represent turbine discharge temperature conditions associated with respective constant turbine inlet temperatures 1200[degree(s)] F. and 1500[degree...

...at top or substantially synchronous speed as indicated by the top speed condition, the speed reference routine is indicated by the reference character 732 and a...

...transition since no large steps occur in the speed reference and accordingly no undesirable operating transients are gas turbine 104. It is also noteworthy that a 0...

...signal during Mode 1 control for reasons of control loop FIG. 32 illustrates the conditions of the various controls considered during Mode 1 control...

...9. Data Logging Program...

...A formatted log is printed in response to execution of the program 618 on a periodic basis selected by the plant operator range of...

...blocks 792, 796, 797 and 798. Unique indications are therefor unsafe or damaging operating conditions identified and function of the various temperature readings taken at the

...gas turbine operation to ensure reliable, safe operation thereby greatly increasing power plant availability. Operating conditions which are known to cause damage to vital turbine parts such as combustor basket and rotor blades are immediately alarm condition is determined by the alarm program 610 at either cyclic execution thereof...

...the thermocouple check program 616 and the second table in the previous condition of the alarm bits. The alarm program on periodic basis, compares the two...

- ...individual sensors. A correlation of the temperature read regularly output by the data log program 618 with the re indications of "Open Thermocouple" or "Exhaust Thermocoupl rise to a facility for immediately determining certain gas operating conditions which may dictate that the operato initiate shutdown. Control system automatically scheduled as a consequence of conditions which simultaneously give alarming of "Maximum Temperature Exceeded" as at 796 and..
- ...and maintenance advantage associated with the operation o system 300 is that the alarm condition which causes a sh readily determined again as indicated by reference numeral Thus, logic processing provided by the sequencing progra implementation of the sequencing logic FIG. 22 avoids th multiple spurious alarms which are caused by the shutdown.
- ...thermocouples. Through the interaction of the thermocoupl processing program 616, and the data logging program 618 provided continuous formatted output reflecting current sta thermocouples and...
- ...The alarm program, data logging program, and miscellane are more fully discussed in the aforementioned copending a No...
- ...Contained in the aforementioned copending related applica 082,470 is a listing including logic and control macros, closure inputs and outputs, the analog inputs and the devi
- ...faults known as bugs which sometimes take long periods of and/or diagnose . Ordinarily the correction of such fau the skill of control and system programmers. The program l ?

T S2/3,KWIC/1-4,8

2/3,KWIC/1 (Item 1 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2006 European Patent Office. All rts. reserv.

00860021

DIAGNOSTIC SYSTEM FOR A COOKING APPLIANCE

DIAGNOSESYSTEM FUR KOCHGERAT

SYSTEME DE DIAGNOSTIC DESTINE A UN USTENSILE DE CUISSON

PATENT ASSIGNEE:

TECHNOLOGY LICENSING CORPORATION, (1694730), 4A Turtle Cre

Tequesta, FL 33469, (US), (Proprietor designated states:

INVENTOR:

BERNARD, G., Koether, 4-A Turtle Creek Drive, Tequesta, FL

LEGAL REPRESENTATIVE:

Naismith, Robert Stewart et al (57811), CRUIKSHANK & FAIRW

Exchange Square, Glasgow, G1 3AE Scotland, (GB)

PATENT (CC, No, Kind, Date): EP 857328 A2 980812 (Basic)

EP 857328 A2 981202

EP 857328 B1 000830

WO 9717642 970515

APPLICATION (CC, No, Date): EP 96938808 961025; WO 96US17

PRIORITY (CC, No, Date): US 549098 951027

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FI; FR; GB; GR; I

MC; NL; PT; SE

INTERNATIONAL PATENT CLASS (V7): G05D-023/00; H05B-001/02; H

G03G-015/20; G11C-011/14; G11C-019/08; F24F-011/02; F25B-0

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; Engl

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200035	970
CLAIMS B	(German)	200035	942
CLAIMS B	(French)	200035	1127
SPEC B	(English)	200035	2738
Total word count - document A			0
Total word count - document B			5777
Total word count - documents A + B			5777

...SPECIFICATION capable of detection of certain classes of malfunctions. However, the limitations of discrete compone

circuitry limits the applicability to a broad range of mal
do not permit a...

...not represent malfunctions. The lack of memory in such sy
prohibits intelligent or "fuzzy logic " type of malfuncti
systems.

To address some of these limitations, cooking appliance
have...

...conditions, including the type and model number of the co
appliance. Moreover, so-called "fuzzy logic " may be used
abnormal operating conditions or malfunctions. Regard
logic used, if abnormal operating conditions are de
appropriate signal can be displayed to the user or transmi
controller 120 uses a microprocessor 125 having a random a
(RAM) 130 and hardware logic 135. Under program control,
125 regulates various operations of the cooking appliance,
training data may be used to teach the diagnostic system t
between normal and abnormal operating conditions .

Factors that may affect the measured temperature gradien
temperature profile include: gas pressure and...

...on collected thermal data - on the performance of the coo
Minor deviations may be recorded and stored in memory or
later provide a temperature profile history...

...statistics, such weight averaging, standard deviation and
well as artificial intelligence or logic called "fuzzy-

In results from experiment practice using 14" Pitco gas
fryers manufactured by Blodgett...

2/3,KWIC/2 (Item 2 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2006 European Patent Office. All rts. reserv.

00693150

Operational amplifier protection circuit using, eit
conditions or at start-up, identical circuit elements
permanent output abnormal

Operationsverstärkerschutzschaltkreis, der entweder im B
Einschalten die gleichen Schaltkreiselemente zur
permanenten anormalen Au

Circuit protecteur a amplification operationnel utilisant normal, soit lors de la mise en marche, des memes eleme pour detecter de

PATENT ASSIGNEE:

STMicroelectronics S.r.l., (1014060), Via C. Olivetti, 2,
Brianza (Milano), (IT), (applicant designated states: DE

INVENTOR:

Tavazzani, Claudio, Strada Paiola 802, I-27100 Pavia (PV),
Fassina, Andrea, Via Ercolano 3, I-20155 Milano, (IT)
Stefani, Fabrizio, Via Roma 50, I-21010 Cardano (VA), (IT)

LEGAL REPRESENTATIVE:

Botti, Mario (87642), Botti & Ferrari S.r.l. Via Locatelli
Milano, (IT)

PATENT (CC, No, Kind, Date): EP 661802 A1 950705 (Basic)
EP 661802 B1 980909

APPLICATION (CC, No, Date): EP 93830541 931231;

PRIORITY (CC, No, Date): EP 93830541 931231

DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS (V7): H03F-001/52; H03F-001/30;

ABSTRACT WORD COUNT: 127

LANGUAGE (Publication,Procedural,Application): English; Engl
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9837	545
CLAIMS B	(German)	9837	478
CLAIMS B	(French)	9837	646
SPEC B	(English)	9837	2721
Total word count - document A			0
Total word count - document B			4390
Total word count - documents A + B			4390

...ABSTRACT comprising circuit switching means (G) for turn-stage and piloted through a logic gate OR (F) by a monos which generates upon arise of abnormal operating cond turn-off command signals having a predetermined duration.

A sensing circuit (B) upon persistence of...

...conditions at start-up or during normal operation also se signals through the logic gate OR (F) after enablement t AND (H).

The signals of any enablement at the logic gate AND ar logic gate OR (C) from a window comparator (A) coupled wi

start-up members, from the monostable, and from the output gate AND (H) as a confirmation signal. (see image in orig

...SPECIFICATION amplifiers (provided in a monolithic or dis presence of devices for protection against abnormal or d operating conditions for the device such as for example output current or temperature is important.

One...

...commonly used to protect the final stage of audio power a Through a type OR logic gate circuit, indicated by F, switching means G for turn-off of the stage...

...three distinct lines.

If by circuit means (not indicated in the figures) design abnormal operating conditions there is detected for e normal operation an overcurrent in the output elements of there is generated a so-called trigger pulse which pilots through the logic gate F the circuit means G for turn-of

The same pulse...

...flip-flop L also enables a sensing circuit B designed to persistence of abnormal operating conditions to pilo logic gate F the circuit switching means G to keep the st

The input...

...which is that of normal operating conditions, is connecte terminal of a logic gate circuit of the AND type indicat Through this logic gate AND the flip-flop can receive ei which is the reversed replica...

...opposition to that with which the sensing circuit pilots switching means. Through the logic gate AND and the flip sensing circuit B is disabled for keeping the stage turned persistence of the abnormal operating conditions cea Naturally all the signals used to activate or deactivate elements just indicated...

...included and the supply levels provided for the final sta Again through the type OR logic gate F, turn-off of th determined also by a second sensing...output a signal for

stage; the configuration shown with inverter and logic g AND type connected to the terminal R is the same as...

...the output signal of the sensing circuit B is operated on logic gate H of the AND type.

In both cases the circuit block as a whole...

...and to generate during said conditions signals which keep turned off through the logic gate F by means of the circuit means G.

After termination of the abnormal...

...circuit switching means can indeed be realized by simply switches which, when activated under abnormal operating switch to ground the current flows of the current generator the stage components...

...automatically.

The circuit block just indicated is enabled to generate signals by a logic gate C of type OR which has an input connected to the output terminal...

...to note that in accordance with the present invention to terminal for the logic gate C of type OR is also connected terminal of the logic gate H of the AND type.

The generator M is activated by a trigger pulse...

...command signals have a duration predetermined in time T s the arise of the abnormal stage operation conditions

The output terminal of the generator M is connected directly circuit switching means G through the logic gate F of the generator can be accomplished advantageously with a monostable

...mentioned, the circuit B of the block diagram of FIG. 3 c are abnormal conditions in amplifier operation such the persistence of a short circuit state of one or more...

...so on. The output line of block B, 'fault existing', is high logic) if an abnormal condition occurs and is low (i.e. otherwise. The gate H of AND type enables the 'fault exist' turn off...

...CLAIMS an enablement terminal of the circuit block for the restoration through a first logic gate circuit of the type

SHOW FILES;DS

File 2:INSPEC 1898-2006/Oct W5
(c) 2006 Institution of Electrical Engineers
File 6:NTIS 1964-2006/Oct W4
(c) 2006 NTIS, Intl Cpyrght All Rights Res
File 8:Ei Compendex(R) 1970-2006/Oct W4
(c) 2006 Elsevier Eng. Info. Inc.
File 34:SciSearch(R) Cited Ref Sci 1990-2006/Oct W5
(c) 2006 The Thomson Corp
File 35:Dissertation Abs Online 1861-2006/Oct
(c) 2006 ProQuest Info&Learning
File 56:Computer and Information Systems Abstracts 1966-200
(c) 2006 CSA.
File 60:ANTE: Abstracts in New Tech & Engineer 1966-2006/Oc
(c) 2006 CSA.
File 65:Inside Conferences 1993-2006/Nov 03
(c) 2006 BLDSC all rts. reserv.
File 92:IHS Intl.Stds.& Specs. 1999/Nov
(c) 1999 Information Handling Services
File 94:JICST-EPlus 1985-2006/Jul W3
(c)2006 Japan Science and Tech Corp(JST)
File 95:TEME-Technology & Management 1989-2006/Oct W5
(c) 2006 FIZ TECHNIK
File 99:Wilson Appl. Sci & Tech Abs 1983-2006/Sep
(c) 2006 The HW Wilson Co.

Set	Items	Description
S1	0	PD<=010614 AND (ABNORMAL? (3W) OPERAT? (2W) ND ((LOG? OR RECORD?) (2W) (FAULT? OR ABNORMAL? ?

```
S PD<=010614 AND (ABNORMAL? (3W) OPERAT? (2W) CONDITION?) A
>>>One or more prefixes are unsupported
>>> or undefined in one or more files.
Processing
>>>File 60 processing for PD= : PD=010614
>>> started at PD=NOV.0000 stopped at PD=19871218
Processed 10 of 20 files ...
>>>File 99 processing for PD= : PD=010614
>>> started at PD=DEC.1200 stopped at PD=19910204
>>>File 103 processing for PD= : PD=010614
>>> started at PD=0210 stopped at PD=19670609
>>>File 144 processing for PD= : PD=010614
>>> started at PD=18019 stopped at PD=198311
Processing
>>>File 275 processing for PD= : PD=010614
>>> started at PD=140103 stopped at PD=870608
Processed 20 of 20 files ...
Completed processing all files
      12689995 PD<=010614
      637717 ABNORMAL?
      7081997 OPERAT?
      6336394 CONDITION?
      1157 ABNORMAL?(3W) OPERAT?(2W) CONDITION?
      2001028 LOG?
      1823449 RECORD?
      597541 FAULT?
      637717 ABNORMAL?
      4948 (LOG? OR RECORD?)(2W) (FAULT? OR ABNORMAL?)
S1      0 PD<=010614 AND (ABNORMAL? (3W) OPERAT? (2
      AND ((LOG? OR RECORD?) (2W) (FAULT? OR ABN
```